

MEMORANDUM

DATE: April 15, 1988
RE: Summary of April 14 Meeting on South Cavalcade RI Report
FROM: James F. Pendergast
Remedial Project Manager (6H-EE)
TO: South Cavalcade files

This memorandum summarizes the discussion about the final RI report from the Meeting on April 14. The PRP had previously sent EPA revisions to Chapters 1 through 6 of the report. Attached is the list of comments which were not addressed in the PRP's revision.

CHAPTERS 1 - 6

The PRP described how they will respond to the outstanding comments:

- Edit #43: Add a footnote to Table 3-2 to describe the calculation.
- Edit #49: Add the accuracy to the text.
- Edit #55: Provide a cleaner copy.
- Tech #4: Put this section in the Executive Summary.
- Tech #12: Use total metals in the risk calculations.
- Tech #23: Delete the computer drawn plots; they cause the problem.
- Tech #30: Add data from DW01 and an off-site well to show no deeper contamination.
- Tech #35: Add narrative to link surface water with surface soils.
- Tech #38: Add narrative to link sediments with surface soils.

CHAPTERS 8 & 9

The PRP showed us the revised versions of these chapters. These completely responded to all our comments except for the ones listed below:

- Tech #69: Means will not be calculated here.
- Tech #70: We agreed to drop this comment; the discussion will be in the FS report.
- Tech #71: Add a map showing surficial contamination and paved areas.
- Tech #76: Retain surface water for Cu, Pb, and Zn impacts on fish.

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CHAPTER 7

Most of the discussion was focussed on Chapter 7, the presentation of subsurface contamination. The PRP agreed to completely respond to all our comments except for the ones listed below:

- Edit #87 & 89: We agreed to drop these comments because the old CDM data have uncertain QA/QC.
- Edit #92: We agreed to drop these because the unit designations were changed in Chapter 4 to correct this.
- Edit #100, Tech #60 & #61: The Unit 4 data will be divided into on-site and off-site.
- Edit 103-107, Tech #62-64: This section will be completely rewritten without the presentation which caused these problems.
- Edit #111 & #112, Tech #68: We agreed to delete the volume calculations.
- Tech #49: The two samples were the only residential area samples.
- Tech #51: This will be put into the Executive Summary.
- Tech #53 & #58: The PRP will check on these.
- Tech #59: We agreed to drop this because there were no data to use.
- Tech #65: "Composited" was poorly used; they will use "combined".
- Tech #66: We agreed to drop this because surrogate data showed contamination.

APPENDICES

The PRP agreed to completely respond to all editorial comments and some technical comments. Appendix I will be deleted because the PRP agrees that the computer drawn groundwater elevations only confuse the issue. The following describes the comments without agreements:

- Tech #6: The PRP disagrees with us. They added water to assure saturation of the well pack. They will review the data and methods to determine if there were any interferences. However, the data did check out with the results from North Cavalcade. Therefore, the significance of this may be small. CDM will also write a memo to discuss this.
- Tech #10: The PRP agreed to run a pump test in the RD if active ground water recovery will be used.
- Tech #11 & #13: We ran out of time; this will be covered in a later phone call.

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EDITORIAL COMMENTS ON VOLUME 1 OF THE DRAFT R1 REPORT

No	Page	Par	Line	Comment
1	----	-	---	Add a list of acronyms.
2	vi	2	---	Add discussion about general ground water flow direction.
3	x	2	---	Correct the range of copper concentrations.
4	xiii	-	---	Replace the column headings for "Maximum Detected Concentrations" with "Maximum Sample".
5	xvi	2	4	Replace "two" with "one".
6	xvii	1	---	Correct the discussion to note that there was an increase in downwind concentrations for phenol, as stated on page 8-17.
41	Table 3-2			Why aren't wells P06, P07 and C7-OW-01, all listed in Appendix F, Volume 3, presented here? State how the well development purge volumes were calculated.
43	3-26	1	--	What was the source and chemical quality of the injected water? What is the precision and accuracy of the water level indicator devices?
49	3-40	1	---	Describe the use of data under each validation class. For example, the qualified data can only be used to indicate the presence of contaminants, and not to quantify the magnitude.
55	Figure 4-11			The figure is exhaustive, yet unreadable. A larger scale map showing a smaller area would be more appropriate. The City of Houston water wells 1085 and 1086, located east of I-59 (present in the N. Cavalcade R1), are not identified on the Figure.
69	7-30	1	8	This sentence is unclear; it can be interpreted to mean that invalid data were used in the evaluation. Invalid data should not be used. We believe you mean to say that some qualitative data were used along with the valid data in the evaluation.
	7-1	2	10	
	7-15	2	14	
	7-23	1	14	
75	7-1	2		Objectives of the groundwater quality evaluation should also include: a. An evaluation of the extent of contamination b. Migration of compounds, both laterally and vertically. c. Evaluation of potential source areas.
76	7-2	2	8	Define "useable quantities" of groundwater and Units 1-4.
77	7-3	2		Add the validation status for the ground water samples.

EDITORIAL COMMENTS ON VOLUME 1 continued

No	Page	Par	Line	Comment
78	7-4	2	4&6	Are the totals for ground water samples correct? You list 62 total samples with 22 total QA/QC samples. This gives 40 total field samples. On page 7-3 you list 60 samples.
79	7-4	2&3	--	The numbers of groundwater samples disagree with page 3-39 and Table 7-2.
80	Tab 7-1			List the hydrogeologic units, discussed in sections 7.6 through 7.7, next to each sample.
81	7-13	3	5	Add a sentence to state that these compounds are not likely contaminants at the creosote site.
82	7-16	1	1	We prefer that you use the number of locations where contamination was detected rather than the number of samples. One objective of the RI report is to identify the extent of contamination; the locations are a better indicator of extent than are the samples.
	7-16	3	4	
	7-23	2	3	
	7-24	1	9	
	7-30	2	3	
	7-31	2	2	"
83	7-16	1	4	Begin the sentence by stating "In the other X borings,".
84	7-16	3	6	Replace "no" with "no detected (10 ug/l)".
	7-24	1	11	" " " " " " "
	7-33	3	6	" " " " " " "
85	7-16	3	7	Begin the sentence by stating "In the other 12 wells,".
86	7-17	3	3	Replace "fairly well distributed" with "found".
	7-25	1	3	" " " " " " "
87	7-18	Fig 7-1		Add the CDM well results.
	7-22	Fig 7-2		" " " " " "
88	7-19	2	---	Add a figure to show the volatile compounds.
89	7-19	2	10	Insert the maximum CDM concentrations.
	7-21	1	9	" " " " " "
90	7-19	3	1	The first sentence either belongs in the above paragraph or else should be a separate paragraph.
	7-27	2	1	
91	7-19	2&3		Restate when the previous samples were collected.
92	Section 7.7			Tables 7A-3 and 7A-4, referred to in the text, contain a number of samples that appear to be incorrectly assigned. Based on the Unit 2 and Unit 3 definitions given on page VI of the Executive Summary, the following Unit 2 samples should be assigned to Unit 3: A01-SB09-30, A03-SB03-21, A03-SB05-22, A05-SB01-19, A06-SB03-19 and A06-SB04-12. If the assignments are correct then a review of how Unit assignments were made would be appropriate.

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EDITORIAL COMMENTS ON VOLUME 1 continued

No	Page	Par	Line	Comment
93	7-25	1	16	Insert "which could account for the variation" after "location".
94	7-26	1	5	The second and third sentences in this paragraph say the same thing about each round of sampling. Why not delete "Round 1" from the second sentence, and delete the third?
95	7-26			The PAH comparison table should include duplicate results or the higher reported value of a duplicate pair.
96	7-28	2	4	Delete "at Monitoring Well SCK-MW11 and".
97	7-28	2	9	The review would be more easily conducted if the results were directly compared in a table.
98	7-30	3	4	Replace "100" with "10".
99	7-31	1	9	Define "useable quantities" of groundwater.
100	7-31	3	--	Compare the metal concentrations to the background for Unit 3. Although not an exact comparison, we believe the this background sample can also serve to indicate the background for Unit 4.
101	7-34	1	2	Insert "in CAV-QW06" after "compounds".
102	7-34	3	--	Add the maximum values of the samples.
	7-34	4	--	" " " " " " "
103	7-35	2	--	In line 4 , reference a map to identify these areas, and in line 5, append "and had concentrations exceeding 1 mg/kg".
104	7-35	3	--	Add "There were xx of these borings."
105	7-36	3	--	This paragraph is unclear. We are not sure which area you are discussing. Reword to make it clearer.
106	7-36	1	--	The numbers in paragraph 1 do not correlate with Figures 7-3 to 7-5.
107	7-36	2		The three samples 2 should be identified. According to Tables 7A-3 and 7A-5, some of these samples were from borings outside of the site boundary. The final sentence of the paragraph contradicts what is stated in paragraph 3, and should be removed.
108	7-40	Bullets		Identify the levels of surrogate and laboratory responses which you used to determine the presence of contamination.
	7-41	Fig 7-6		
109	7-34	-----		Add a map and discussion for volatiles and metals.
	7-40	-----		" " " " " " " " " "
	xiv	-----		" " " " " " " " " "

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EDITORIAL COMMENTS ON VOLUME 1 continued

No	Page	Par	Line	Comment
110	7-43	1	2	Identify the method detection level.
	7-44	2	4	" " " " "
111	7-45	3	--	Add the missing aquifer thicknesses.
112	7-46	1	--	Add the missing ground water volumes.
113	7A-1	-----		The units should be the same as in the text (mg/kg).
	7A-4	-----		" " " " " " " " " " "
	7A-5	-----		" " " " " " " " " " "
	7A-6	-----		" " " " " " " " " " "
	7A-9	-----		" " " " " " " " " " "
	7A-10	-----		" " " " " " " " " " "
114	Appendix 7A			There appear to be errors in the validation status of A06-SB06-07, in the chromium and copper results of A10-SB04-08 and in some PAH results of A02-SB03-21, A03-SB01-11, A26-SB05-19, compared to Appendix Q, Volume 3.
115	Appendix 7B			The validation status of all samples is missing and the VOC results of MW01-001 and MW12-001 are missing. Appendix R, Volume 3 also indicates that Table 7B-5, samples MW12-001 are incorrectly reported. The sampling dates should be given on Tables 7B-13 and 7B-15.
116	8-2	-----		Add some discussion on data validation for air samples.
117	8-3	Tab 8-1		Add the time of day to the column headings.
118	8-12	2	13	The last part of the paragraph is confusing. One sentence states that it is impossible to evaluate collection efficiency whereas the next sentence says it is satisfactory. Reword to clarify the points you are making.
119	8-13	1	5	Replace "27" with "17".
120	8-13	1	6	Add "which have MEG's" after "investigated".
121	8-18	4	1	Replace "27" with "17".
122	8-18	4	1	Add "which have MEG's" after "analyzed".
123	8-18	4	2	Replace "limits" with "MEG's".
124	8-19	3	1	Define trace quantities as "less than 0.01 ug/M ³ ".
125	9-1	-	--	Reference the guidelines used to perform this preliminary PHEA.
126	9-4	3	8	The term "light aromatics" should be defined, in terms of a list of compounds.

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EDITORIAL COMMENTS ON VOLUME 1 continued

No	Page	Par	Line	Comment
127	9-5	Tab 9-1		The tables are missing means and some data, and are not consistent when reporting zero occurrences. We prefer that you use the same format for these tables as you used in the Texarkana RI report.
	9-6	Tab 9-2		-ditto-
	9-9	Tab 9-3		-ditto-
	9-10	Tab 9-4		
	9-12	Tab 9-5		
	9-13	Tab 9-6		
128	Tab 9-3			Unit 1-3 numbers do not track the data in Appendix Q, Volume 3 and with Appendix 7A. Explain on how these tables were developed.
	Tab 9-4			
129	9-11			Rephrase this section to clarify that the selected PCOC's are those compounds which were used at the facility. This also requires that the compounds related to historical operations be discussed at some location in Section 1.
130	Tab 9-5			Major discrepancies exist with Appendix R, Volume 3, Appendix 7B and this table. In addition, the higher reported value of a duplicate pair should be listed.
131	Tab 9-6			The numbers should be checked against Appendix R, Volume 3. Cadmium results here are incomplete.
132	9-15	Soils		The pathways for the trespassers also apply to the on-site workers. Fix the table to show this.
133	9-15	Sediment		Access is not restricted for all ditches. Therefore, the term "trespassers" is not completely accurate. We prefer the term "non-workers".
	9-16	2	2	
	9-26	Sediment		
134	9-18	2	2	Replace "two areas" with "two detected areas".
135	9-19	2	2	Replace "both areas" with "both detected areas".
136	9-22	2	10	Reference the letter from USFWS.

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EDITORIAL COMMENTS ON VOLUME 2 OF THE DRAFT R1 REPORT

No	Page	Par	Line	Comment
1	Appendix G			Add the 9/17/86 letter from James Campbell which requests the revised sampling program.

EDITORIAL COMMENTS ON VOLUME 3 OF THE DRAFT R1 REPORT

No	Page	Par	Line	Comment
1	A-6	Figure		The well log in Appendix F shows a clayey sand for SCK-P05 at 51 feet instead of a silty sand. The nearby boring A26-SB03 also shows a clayey sand at 51 feet.
2	C-1	1	5	Delete "general" and "generally".
	S-1	1	5	" " " "
	S-1	1	7	" " " "
3	C-2	Note 2		What is this describing?
4	C-3	2	---	Identify in this paragraph a high value from the data. This is needed for comparison to the low values discussed.
5	C-4	Table		The "zero" for zinc should be "4".
6	C-6	3	13	Insert "total aromatic hydrocarbons" after "samples".
7	C-11	1	1	The first part of the sentence is missing.
8	C-11	1	---	Show the data regarding the replicates.
	C-11	3	---	" " " " " "
9	E-9	Table		The data are missing from the table.
10	Appendix I			The shallow plot for 8/28/85 is either mis-dated or out of order.
11	J-13	Table		The sieve curve for SCK-P01 on page A-5 does not intersect the 10% line. Therefore, the Hazen approximation should be $<1.0 \times 10^{-6}$.
12	J-14	2	7	Replace "less" with "more".
13	Appendix L			Add the well records for wells 407, 408, and 438.
14	Appendix Q			Some of the unit number assignments appear inconsistent.
15	Appendix R			Add the validation status for each sample.
16	Appendix S			Is the 2-methylnaphthalene value for A13-SB01-10 (0.1800 ug/kg) correct? Also, the 2-nitrophenol and 2,4-dimethylphenol values disagree with Appendix R, Volume 3 for sample MW12-001. Which is correct?

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TECHNICAL COMMENTS ON VOLUME 1 OF THE DRAFT RI REPORT

No	Page	Par	Line	Comment
1	x	3		It is unclear why the conclusion was reached that no surficial contaminant source areas were disclosed given that soil staining was noted at a total of 44 boring locations.
4	1-18	-----		Add a subsection which discusses the extent and nature of the contaminant problem. This is a required item under the 1985 RI guidance.
12	3-25	2	3	What was the turbidity of collected samples? How would not filtering affect the interpretation of the metals?
23	4-36	3&4	--	Why do the groundwater contour maps in Appendix I, Volume 3 change after August 1986? It would be helpful to show the location of the leaky pipe on Figure 4-15. What is the estimated discharge rate of this pipe? How long has the pipe been leaking?
30	Figure 4-19			Is DW02 too far to the west to have a chance of capturing any potential contamination from the source areas? This figure suggests that we need a deep well to the east.
35	Section 5.3.4			Are there any conclusions regarding potential source areas or correlations with contaminated soils or groundwater?
38	Section 5.4.4			The section should include discussion of potential source areas, relationship to surface water results, and comparison to background levels.
45	7-30	4	Table	Why is lead not listed? We understand that lead may not a typical contaminant at a creosote site, but the site data shows that lead was found in concentrations exceeding the background. Therefore, include lead in these tables.
	x	2	---	
	7-16	2	---	
	7-24	1	---	
47	7-10	3	6	We do not agree that all four locations show "fairly consistent" results. Well MW-16 has chemical parameters which are much greater than the parameters for the other three wells.
48	Section 7.5			Given that MCL's or MCLG's exist for three of the detected volatile organic compounds, why aren't volatile organic results for groundwater discussed?
49	7-15	1	6	According to the soil boring location map (Figure 3-4), approximately one third of the 88 soil borings were collected off-site. Why then were only two soil borings chosen as being representative of background soil inorganic conditions?
51	Section 7.6.1			What are the conclusions regarding soil contamination?
	Section 7.7.1			What is the distribution of compounds detected above background levels? How significant are these?

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TECHNICAL COMMENTS ON VOLUME 1 continued

No	Page	Par	Line	Comment
52	Section	7.6.2		Discuss that volatile organic compounds (excluding methylene chloride and acetone) were detected in 8 of the 18 shallow zone monitoring wells (Table 7B-2) and benzene concentrations were greater than 50 mg/l in 4 locations.
53	7-17	3	10	Were the non-aqueous phase liquids noted in Well CAV-DW11 lighter or denser than water? This has significant implications for solute transport.
54	7-19	1	11	Discuss the possible explanations for the differences in pentachlorophenol detection between the previous and the RI-related sampling results.
55	7-20	2	--	How representative of groundwater inorganic chemistry are the results from nonfiltered metals samples? This comment also applies to Figure 7-2.
	7-27	3	--	
56	7-25	1	11	What could account for the order of magnitude decrease in PAH concentrations at well SCK-P03?
58	7-29	1	--	Why are metals concentrations higher at the northern end of the site than the southern end?
59	Section	7.8.1		What is the relationship between the lower intermediate zone (silt zone) water quality and Unit 3 soil quality?
60	Section	7.9.1		It should be noted that 4 of the 5 Unit 4 soil samples discussed here are located outside of the site boundary. How applicable are the off-site results?
61	7-31	3	--	How do background concentrations compare to the inorganic indicator concentrations?
62	7-35			The table is missing many samples (A01-SB03, A01-SB04, A01-SB09, A03-SB03, A17-SB01) that contain PAH's and includes some samples collected outside the site boundary (A06-SB04, A08-SB02). Any reason for this? Also, why were borings A01-SB03, A01-SB09, and A03-SB05 not included in this analysis?
63	7-36	1	5	What about A10-SB01? This boring has the highest concentration in the southeastern area.
64	Fig 7-3 Fig 7-4 Fig 7-5			The origin of the data points on these figures is unclear. Why are some Unit 2 data points deeper than Unit 3 data points?
65	7-40	3	1	The method in which soil and groundwater results were composited needs to be explained in more detail. The validity of this approach should also be discussed.

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TECHNICAL COMMENTS ON VOLUME 1 continued

No	Page	Par	Line	Comment
66	Fig 7-6			The Unit 2 boundary contour drawn around borings A26-SB04 and A26-SB05 is inconsistent. Appendix Q, Volume 3 indicates the only detected PAH compound at either site is bis-(2 ethylhexyl) phthalate. Occurrences of this compound in other borings has been ignored. Also, why isn't well OW06 shown on the map? What are the implications of this map, given note number 4?
67	7-42	2	--	What accounts for off-site migration of PAH compounds to the southeast? According to Figure 4-6 and the groundwater contour maps in Appendix I, Volume 3, this is in the upgradient and updip direction. What conclusions can be made regarding VOC distributions?
68	Section 7.12			Why not identify the volume of soils associated with the contaminated ground water?
69	9-2	2	6	How were the J values used? How were the geometric means calculated?
70	9-2	2	--	Was there any correlation between areas of facility operations and areas of detected contamination? Such a correlation could be used to identify areas of potential exposure in the absence on analytical results.
71	9-7	1		What about surficial soils? Are these also of interest? What about future development which may result in breaching the paved areas? These issues must also be addressed.
72	9-11 xvii	3 4		Lead was found at concentrations exceeding the background. Why isn't it considered a PCOC?
73	9-11 Tab 9-10	last		The occurrence of PCOC's summary, item 2, is extremely misleading. VOC's were not analyzed for in soils so their occurrence in soils is unknown.
74	Tab 9-7			An exposure pathway to off-site workers and residential occupants due to off-site migration of surface water and groundwater should be included and evaluated. Also, the exposure to on-site workers is not only limited to dust; some of the compounds, especially benzene, can volatilize and thereby affect inhalation. These comments also apply to sections 9.4.1, 9.4.3, 9.5.3 and Tables 9-10 and 9-11.
75	9-20	2	--	The possibility of downward migration of denser than water NAPL around old or poorly completed wells should be addressed.
76	9-24 9-27 xxi	1	6	Some of the metals in the surface water exceed EPA chronic aquatic water criteria. We disagree with this statement in the report.

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TECHNICAL COMMENTS ON VOLUME 3 OF THE DRAFT R1 REPORT

No	Page	Par	Line	Comment
1	A-1	Table		Explain why sample A14-SB03-19 has a hydraulic conductivity which is two orders of magnitude greater than the others from this aquitard.
2	C-1	1	1	What measure was evaluated? Were you evaluating the presence or magnitude of contamination? This paragraph implies magnitude; the statement discusses presence.
3	C-1	1	11	How was agreement on negative correlations used?
4	C-3	3	---	We do not believe you have sufficient data to make any statistically significant statement about x-ray fluorescence. However, we agree that your data and lack of data shows that x-ray fluorescence is not a proven method for this site.
5	Appendix I			We have problems with the manner in which these plots were drawn. The computer only fits curves to data. It does not provide hydrogeological interpretations. This becomes very evident in the figures where new wells are added. The additional information can radically change the interpretation of the data.
6	J-1			The hydraulic conductivity test procedure is questionable. If static water levels are above the top of the confined aquifer, the process of "saturating" the test zone is unnecessary and creates artificial static head (H).
7	J-2	Table		We have problems with SCK-P05. Part of the boring log from Appendix F shows a clayey sand. Nearby borings show a clayey sand (A26-SB03) and a sandy clay (A26-SB08).
8	J-3			The falling-head test results vary by more than an order of magnitude in each water-bearing zone.
9	J-12			The grain-size analyses in Appendix A indicate that Hazen approximations of hydraulic conductivity are not valid (10 percent passing must exceed 0.1 mm grain size).
10	J-14			Falling-head (slug) tests are limited by the material having the lowest hydraulic conductivity of the following:

Well Screen
Filter Pack
Borehole Wall
Formation near the well

It is not possible to determine which of these hydraulic conductivities are being measured during a slug test. Therefore, the slug test may not truly determine the aquifer characteristics.

TECHNICAL COMMENTS ON VOLUME continued

No	Page	Par	Line	Comment
11	Appendix S			Blank contamination is not discussed in the text. How was blank contamination incorporated into the evaluation of sampling results?
12	S-5	-----		Add a discussion on precision. This involves calculating a relative standard deviation (%RSD) and comparing it on a contaminant specific basis to the %RSD from the EPA CLP program. We have mailed you an EPA report which presents the CLP results and describes the methodology for calculating the %RSD.
13	Appendix S			The blank sample SW08-01 has a high lead content, but all of the inorganic data in Appendix P were portrayed as valid. Doesn't the high lead blank make the lead results only qualitative?

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